

REMARKS

The Office Action dated January 15, 2003, presents the examination of claims 1-10. Claims 1-10 are canceled. Claims 11-28 are added. Support for claims 11-13 is found in original claims 1-5; support for claim 14 is found in original claim 8; support for claims 15 and 16 is found in the specification, such as on pages 6-7; support for claims 17 and 18 is found in original claims 9 and 10, respectively. No new matter is inserted into the application.

Sp cification

Drawings

The Examiner objects to the drawings. Corrected drawings are submitted herewith under separate cover. Thus, the instant objection is overcome.

Title

The Examiner objects to the title for allegedly not being descriptive. In response to the Examiner's remarks, the title is amended to --A METHOD FOR PRODUCING A MALE-STERILE PLANT BY LIGATING AN RNASE GENE TO ANTHER-SPECIFIC PROMOTERS--. Thus, the instant objection is overcome.

Abstract

The Examiner objects to the abstract. In response to the Examiner's remarks, Applicants submit a new abstract herewith on a separate page. Thus, the instant objection is overcome.

Claim Objections

The Examiner objects to claims 2-3, 5, and 9-10 for various informalities. Claims 2-3, 5, and 9-10 are canceled, thus rendering the objection moot. Applicants respectfully submit that the newly added claims do not contain any objectionable language. Withdrawal of the objection is therefore respectfully requested.

Rejection under 35 U.S.C. § 112, first paragraph

Enablement

The Examiner rejects claims 1-10 under 35 U.S.C. § 112, first paragraph for allegedly not being enabled by the specification. Claims 1-10 are canceled, thus rendering rejection thereof moot. Applicants respectfully traverse the rejection if applied to new claims 11-18. Consideration of the claims and withdrawal of the instant rejection are respectfully requested.

Specifically, the Examiner asserts that the specification enables promoters of SEQ ID NOs:6 and 7, but does not enable promoters containing "parts" or modifications of SEQ ID NOs:6 and

7. The Examiner takes the position that one skilled in the art could not predict which mutations of the promoter sequences will result in a functional promoter. The Examiner relies on several articles which assert that small changes in a promoter sequence can lead to activity changes.

Applicants respectfully disagree and submit that it would not cause the skilled artisan undue experimentation to use a part or modification of SEQ ID NOs: 6 and 7. The promoters used in the present invention, i.e., SEQ ID NOs: 6 and 7, are completely distinguishable from the promoters disclosed in the references cited by the Examiner. Applicants respectfully point out that one of the important features of the present invention is that the first promoter comprises a part of the nucleotide sequence of the promoter represented by SEQ ID NO:6. In other words, the effect of the present invention was achieved by using a promoter of non-entire length of SEQ ID NO:6 as the first promoter for expressing barnase. Therefore, a person skilled in the art can practice the invention within the scope of the claims.

Claims 12 and 13 are directed to promoters comprising nucleotide sequences having about 90% homology to SEQ ID NOs:6 or 7. This homology is supported by the specification on pages 6-7. Furthermore, claims 15 and 16 are directed to, in part, promoters obtained from the modification of ten or less and five or less nucleotides of SEQ ID NO:7, respectively, as further disclosed on page 7.

Applicants respectfully submit that the pending claims contain subject matter fully enabled by the specification. Withdrawal of the instant rejection is therefore respectfully requested.

Written Description

The Examiner also rejects claims 1-5 and 7-10 under 35 U.S.C. § 112, first paragraph for allegedly not being described in the specification. Claims 1-5 and 7-10 are canceled, thus rendering rejection thereof moot. Applicants respectfully traverse the rejection if applied to new claims 11-18. Consideration of the claims and withdrawal of the instant rejection are respectfully requested.

Similar to the above, the Examiner states that the specification describes promoters of SEQ ID NOs:6 and 7, but does not describe promoters of "portions" of SEQ ID NOs:6 and 7. Applicants respectfully disagree. Contrary to the Examiner's assertion, a promoter fragment is disclosed as SEQ ID NO:4. Furthermore and as noted above, one of the important features of the present invention is that the first promoter comprises a part of the nucleotide sequence of the promoter represented by SEQ ID NO:6. Therefore, a person skilled in the art can practice the invention as recited in the claims.

For these reasons, the rejection is improper and should be withdrawn.

Rejection under 35 U.S.C. § 112, second paragraph

The Examiner rejects claims 1-6, 8 and 10 under 35 U.S.C. § 112, second paragraph for allegedly being indefinite. Claims 1-6, 8, and 10 are canceled, thus rendering rejection thereof moot. Applicants respectfully traverse the rejection if applied to new claims 11-18. Consideration of the claims and withdrawal of the instant rejection are respectfully requested.

Claim 1

The Examiner asserts that "said plant" does not have antecedent basis. Claim 11, directed in part to the subject matter of canceled claim 1, recites "a plant" in order to resolve antecedent basis issues.

Claim 8

The Examiner asserts that claim 8 is indefinite for reciting "the sequence obtained by modifying...one or more nucleotides." Claims 14 and 15, directed in part to the subject matter of canceled claim 8, recite "a sequence obtained by modifying the same by the substitution or deletion...." Applicants respectfully submit that a skilled artisan can predict and produce various substitutions and/or deletions in the sequence represented by SEQ ID NO:7 without undue experimentation.

Claim 10

The Examiner rejects claim 10 because it is allegedly unclear which sequence is transferred into the genome. Claim 18, directed in part to the subject matter of canceled claim 10, recites that the RNase inhibitor protein gene is transferred into the genome.

Applicants respectfully submit that the pending claims particularly point out and distinctly claim the subject matter which is the invention such that the requirements of 35 U.S.C. § 112, second paragraph are satisfied. Withdrawal of the instant rejection is therefore respectfully requested.

Rejection under 35 U.S.C. § 102

Michiels '956 and '948

The Examiner rejects claims 1-5 and 7-10 under 35 U.S.C. § 102(b) for allegedly being anticipated by Michiels '956 (WO 92/13956) and Michiels '948 (U.S. Patent 5,639,948). Claims 1-5 and 7-10 are canceled, thus rendering rejection thereof moot. Applicants respectfully traverse the rejection if applied to new claims 11-18. Consideration of the claims and withdrawal of the instant rejection are respectfully requested.

Both Michiels '956 and '948 disclose methods to make male-sterile plants. The Examiner asserts that the promoter sequences used by Michiels '956 and '948 would comprise "part" of SEQ ID NOs:6 or 7. Applicants respectfully disagree.

On page 4, lines 7-22 of the specification, it is stated that:

Based on this fact, it was assumed that the effect of the upper part of the E1 promoter on the expression of the barnase gene would have been compromised by the intervention of the transposon of 10 kb or more and, as a result, the expression of the barnase gene would have been depressed giving rise to the alleviation of morphological abnormality.

On the other hand, Michiel et al. simply discloses that the minimum anther specific region of E1 promoter exists in about 300-500 bp upstream of the starting codon. Michiel et al. does not even suggest the production of a male-sterile plant free from morphological abnormality, which is obtained in the present invention. Therefore, the present invention is not obvious over Michiel '956 and Michiel '948. Withdrawal of the instant rejection is therefore respectfully requested.

Mariani '929

The Examiner also rejects claims 1-5 and 7-10 under 35 U.S.C. § 102(b) for allegedly being anticipated by Mariani '929 (U.S. Patent 5,792,929). Claims 1-5 and 7-10 are canceled, thus rendering rejection thereof moot. Applicants respectfully traverse the rejection is applied to new claims 11-18. Reconsideration of the claims and withdrawal of the instant rejection are respectfully requested.

Mariani '929 also teaches a method for making male-sterile plants. Again, the Examiner notes that the promoter used by

Mariani '929 would comprise a "part" of SEQ ID NO:6. Applicants respectfully disagree.

Similar to above, Mariani '929 fails to disclose or suggest the production of a male-sterile plant free from morphological abnormality. Therefore, the present invention is not obvious over Mariani '929. Withdrawal of the instant rejection is therefore respectfully requested.

Conclusion

Overall, the present invention possesses significant patentable features that the cited prior art references do not possess. Furthermore, Applicants submit that the instant claims are fully in compliance with 35 U.S.C. § 112, first and second paragraphs. All of the present claims define patentable subject matter such that this application should be placed into condition for allowance. Early and favorable action on the merits of the present application is thereby requested.

If there are any minor matters precluding allowance of the present application which may be resolved by a telephone discussion, the Examiner is respectfully requested to contact Kristi L. Rupert, Ph.D. (Reg. No. 45,702) at (703) 205-8000.

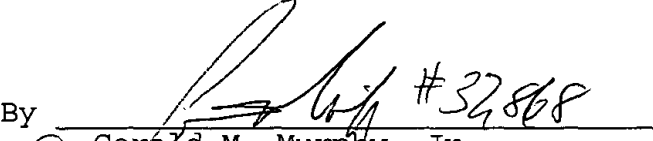
Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of three (3) months to July 15, 2003, in which to file a reply to the Office Action. The required fee of \$930.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By


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GMM/KLR/gml
Attachment:

Version with Markings to Show Changes Made

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

The title has been amended as follows:

A METHOD FOR PRODUCING A MALE-STERILE PLANT BY LIGATING AN
RNASE GENE TO ANTHER-SPECIFIC PROMOTERS

IN THE ABSTRACT

The abstract has been replaced with a substitute abstract,
which is attached hereto on a separate page.

IN THE CLAIMS

Claims 1-10 have been canceled.

Claims 11-18 have been added.